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(54) Title: HIGH DENSITY LABELING OF DNA WITH MODIFIED OR "CHROMOPHORE" CARRYING NUCLEOTIDES AND DNA POLYMERASES USED

(57) Abstract: Subjects of the inventions are methods for enzymatic DNA labeling. Nucleotides modified to carry functional or detectable groups are incorporated into newly synthesized DNA by DNA polymerases. DNA is synthesized from modified nucleoside triphosphates by DNA polymerases such that the newly synthesized DNA consists exclusively of modified nucleotides or contains modified nucleotides in high density. There are provided modified nucleoside triphosphates which are incorporated by DNA polymerases and a group of DNA polymerases which incorporate these nucleoside triphosphates in high density.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12Q1/68

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, CHEM ABS Data, MEDLINE, EMBASE, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 93 03180 A (EUROP LAB MOLEKULARBIOLOG) 18 February 1993 (1993-02-18) page 5-6	1-13
X	WO 92 06216 A (BOEHRINGER MANNHEIM GMBH) 16 April 1992 (1992-04-16) claim 1	1-13
X	WO 92 00989 A (ICI PLC) 23 January 1992 (1992-01-23) the whole document	1-13
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>DATABASE BIOSIS 'Online! BIOSCIENCES INFORMATION SERVICE, PHILADELPHIA, PA, US; 1994 KOMMINOTH PAUL ET AL: "Evaluation of methods for hepatitis C virus detection in archival liver biopsies." Database accession no. PREV199598141463 XP002182194 abstract & PATHOLOGY RESEARCH AND PRACTICE, vol. 190, no. 11, 1994, pages 1017-1025, ISSN: 0344-0338</p> <p>-----</p>	1-13

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9303180	A	18-02-1993	DE 4214112 A1	04-02-1993
			DE 59209573 D1	07-01-1999
			WO 9303180 A1	18-02-1993
			EP 0597006 A1	18-05-1994
			JP 6509472 T	27-10-1994
			JP 3135572 B2	19-02-2001
			US 5912118 A	15-06-1999
WO 9206216	A	16-04-1992	DE 4038804 A1	16-04-1992
			DE 4041608 A1	25-06-1992
			AT 150092 T	15-03-1997
			AT 122104 T	15-05-1995
			AU 655781 B2	12-01-1995
			AU 8627591 A	28-04-1992
			CA 2052668 A1	10-04-1992
			CA 2093647 A1	10-04-1992
			DE 59105402 D1	08-06-1995
			DE 59108610 D1	17-04-1997
			DK 552203 T3	02-10-1995
			WO 9206216 A1	16-04-1992
			EP 0480289 A1	15-04-1992
			EP 0552203 A1	28-07-1993
			ES 2101706 T3	16-07-1997
			ES 2073771 T3	16-08-1995
			FI 931586 A	07-04-1993
			IE 913552 A1	22-04-1992
			IL 99663 A	31-12-1995
			JP 4258299 A	14-09-1992
			JP 6040839 B	01-06-1994
			JP 2673162 B2	05-11-1997
			JP 6501157 T	10-02-1994
			NO 305995 B1	30-08-1999
			NZ 240079 A	27-07-1993
			PT 99177 A ,B	30-09-1992
			US 6225094 B1	01-05-2001
			US 5753433 A	19-05-1998
			ZA 9108024 A	29-07-1992
WO 9200989	A	23-01-1992	WO 9200989 A1	23-01-1992